The official voice of the Air Force Research Laboratory

news@afrl

May 2002 Volume III, Issue 5

Program brings Ukrainian professor to Eglin

EGLIN AIR FORCE BASE, Fla. — Professor Volodymyr Malyutenko, from the Institute of Semiconductor Physics, Ukranian Academy of Science, Kiev, Ukraine, visited the Eglin area in April, to discuss ongoing joint research efforts with the Air Force Research Laboratory through the Science and Technology Center Ukraine program.....2

AFOSR 50th Anniversary celebration

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — An all-star cast of the world's finest scientists and engineers celebrated the 50th anniversary of the Air Force Office of Scientific Research (AFOSR) on April 25 in Washington D.C. The commemoration reflected on the past and focused on future goals.....3

AF Secretary Roche pays visit to Wright-Patt, AFRL

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — Secretary of the Air Force James G. Roche completed his first visit to Wright-Patterson Air Force Base April 30th, saying he was impressed by "our Air Force people."....4

AFRL's Gio Pagán, one of 40 Under 40

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — When Giovanni (Gio) Pagán moved from Puerto Rico to Ohio more than a decade ago, he brought with him strong ties to his Latino roots and culture.....4

Additional information is available online including:

- **Breaking News Features**
- **Corporate Calendar**
- **Contact Information**

NASTC conference draws large crowd

by Joanne Rumple, ASC Public Affairs

DAYTON, Ohio — Transforming air power through technology and innovation was the theme as some 800 research and acquisition professionals from the Air Force, industry and academia met this week at the Dayton Convention Center and Wright-Patterson AFB for the 2002 National Aeronautical Systems and Technology Conference.

Setting the stage for the conference's three dozen speakers, Gen. Lester L. Lyles, Air Force Materiel Command commander, emphasized the need for transforming the Air Force and the command — and his vision of that transformation. He addressed the need to reduce program development cycle times, use spiral development to incorporate new technologies and increased capabilities into weapon systems, eliminate programmatic surprises and coordinate the transformation now under way for sustainment programs.

Lyles said if he asked any of the major program directors in the audience what they were graded on, they would say they are graded on how well they executed their programs.

"And that's good," he said. "All of us who were program directors in the past ... learned to focus on our own programs. When you think about it in terms of effects and in terms of capabilities, and transformation and enterprise, we have to get away from that program-centric culture and mindset. We're trying to find ways now that we can also raise program directors — raise people in our organizations — to focus on creating the desired effect for the war fighter, to focus on creating and supporting the enterprise."

Lyles said the objective is to break people out of their "stovepipes" and to look at issues with a broader perspective.

"This is a different way of thinking," he said. "We don't normally teach people to do that. We're going to have to make that part of our teaching process as we go through our transformation."

NASTC continued on page 3

Rich Garcia, public affairs chief for Air Force Research Laboratory's Directed Energy Directorate, talks about the modified Boeing 747-400F which will carry the Airborne Laser weapon system. The program is managed by Aeronautical Systems Center at Kirtland Air Force Base, N.M. (Air Force photo by Spencer P. Lane)

news@afrl

May 2002

Commander
Maj. Gen. Paul D. Nielsen

Director of Public Affairs
Anne Gunter

Production Editor
Jill Bohn

Associate Editor
Katherine Gleason

Public Affairs Specialist
2nd Lt Morgan O'Brien III

news@afrl is published quarterly by the Office of Public Affairs of Air Force Research Laboratory Headquarters. Contact the office at AFRL/PA, Building 15 Room 225, 1864 4th St., WPAFB, Ohio, 45433-7132, (937) 656-9010/9876, or send e-mail to AFRL.PA@afrl.af.mil. Contents of this newsletter are not necessarily the official views of, or are endorsed by, the U.S. Government, the Department of Defense or the Department of the Air Force. The editorial content is edited, prepared and provided by this office. Photographs are official U.S. Air Force photos unless otherwise indicated. Submission guidelines are available from this office or on-line. Electronic copies and additional full-text articles are available on-line at:

http://extra.afrl.af.mil/news/index.htm

Program brings Ukrainian professor to Eglin

by Rex Swenson, Munitions Directorate

EGLIN AIR FORCE BASE, Fla. — Professor Volodymyr Malyutenko, from the Institute of Semiconductor Physics, Ukranian Academy of Science, Kiev, Ukraine, visited the Eglin area in April, to discuss ongoing joint research efforts with the Air Force Research Laboratory through the Science and Technology Center Ukraine program.

Volodymyr Malyutenko

Malyutenko gave a general presentation to the Emerald Coast Optical Society at the University of Florida Graduate Engineering and Research Center, located in nearby Shalimar, on Friday, April 12.

"I am enjoying my visit to Florida very much," said the professor. "The best part is the exchange of ideas with my American colleagues."

The Air Force Office of Scientific Research sponsored his visit as a Windows on Science Visit. The professor's current efforts include development of mid and long wave infrared (IR) light-emitting diode blackbody point/extended sources, visible to IR scene conversion, and a preliminary demonstration of a Germanium visible to IR converter concept device, he explained. Commercialization discussions with various companies were also on the agenda.

Professor Malyutenko is the Head of Department at the Institute of Semiconductor Physics in Kiev, Ukraine. His current research interests include: science based understanding of extreme level electron processes in IR emitting structures, 2D- and 3D-computer modeling of heat and light transfer in LEDs, light conversion processes, high resolution IR microscopy and IR dynamic scene simulation devices.

He is a member of the International Editorial Board of Infrared Physics & Technology Journal, and serves as a scientific adviser to NATO. **@**

Find additional Fe@tures on the web

AFRL men's basketball wins third intramural title

Jet displays tribute to surgeon's support

AFRL technology helps catch a killer

AFOSR 50th Anniversary celebration reflects on past, focuses on future

by 2nd Lt. Morgan J. O'Brien III, AFRL Public Affairs

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — An all-star cast of the world's finest scientists and engineers celebrated the 50th anniversary of the Air Force Office of Scientific Research (AFOSR) on April 25 in Washington D.C. The commemoration reflected on the past and focused on future goals.

The event, which took place in the Ronald Reagan Building and International Trade Center, included exhibits from the Air Force Research Laboratory's nine technology directorates and AFOSR; a keynote address and luncheon with the Chairman of the House Science Committee Sherwood Boehlert (R-N.Y.); and was framed by a series of world-renowned guest speakers.

The theme of the event, "Celebrating 50 years of Scientific Breakthroughs for the Warfighter," concentrated on the essence of what AFOSR does best: building the foundation for revolutionary breakthroughs in science and technology.

"Organizations like the Air Force Research Laboratory and the AFOSR are the wellsprings of innovation and discovery across disciplines of science and engineering," noted Boehlert. "We must continue to keep them healthy and vibrant so we may continue to keep the U.S. Air Force on the cutting edge far into the future."

Dr. Lyle Schwartz, Director of the AFOSR, kicked off the festivities with a video tracing the history of the soldier scientist from Archimedes to the past 50 years of accomplishments of the AFOSR. While lauding the accomplishments of the past half-century, Dr. Schwartz's speech focused on the years to come, a theme mentioned many times throughout the celebration.

"We seek the brightest minds," Schwartz said, "Wherever they may be found."

Also in attendance were two Nobel laureates, Dr. Steven Chu and Dr. Alan J. Heeger, who spoke of the necessity of future scientific synthesis.

"The connection between physics and biology is fairly obvious," said Chu. "Without that connection, we would not have the scanning electron microscope, laser eye surgery or x-ray crystallography. AFOSR and its basic research are vital to technological advances in the future." Heeger concurred, adding; "The key to fighting bioterrorism comes from the combination of disciplines in order to create technologies such as handheld anthrax sensors and the like."

Air Force Materiel Command commander Gen. Lester Lyles spoke about the contribution basic science made to the Air Operations Center, the vital weapon system of the Air Force.

"The heart and soul of the operational Air Force is the Air Operations Center," said Lyles, "and technologies such as the data wall and other technologies borne of basic science keep this heart and soul going."

Air Force Research Laboratory (AFRL) Commander Maj. Gen. Paul Nielsen agreed with the need to remember the past when focusing on the future. **@**

NASTC (from page 1)

Hosted by Aeronautical Systems Center Commander Lt. Gen. Dick Reynolds and Air Force Research Laboratory Commander Maj. Gen. Paul Nielsen, this was the third NASTC conference, part of a series of annual conferences designed to help Air Force and industry counterparts communicate about changes critical to the defense of the nation.

"This (conference) is all about exchanging information," Reynolds said. "The 'kill chain' for this week is information leading to knowledge which compels understanding that yields ideas for transformation. We have broken (attendance) records for the second year with about 800 people here. We have sold out our conference space."

Nielsen added, "The great turnout affords us an opportunity to demonstrate AFRL's transformational innovations to many of the key people in air and space technology. With an audience like this, we help influence both the focus of today's science and technology and the air and space innovations of tomorrow. This conference helps us achieve that goal by allowing us to share with our industry counterparts the technologies we want their help in developing."

A common thread of many of the briefings was Air Force and DOD emphasis on capability-based planning and acquisition — rather than platform-centric or weapon system-based planning to support the war fighter; emphasis on developments in information-, nano-, directed energy and bio-technologies; and changes in organizational structure to codify these approaches to transformation.

Retired Air Force Maj. Gen. Claude Bolton, now assistant secretary of the Army for acquisition, logistics and technology, spoke about Army initiatives to reform that service's acquisition.

Bolton said the Army's transformation will be the service's "biggest change in the Army in 100 years." As part of his presentation, "Transforming the Way Soldiers Fight," Bolton spoke of linked systems talking and fighting together in a sphere moving around the battle space. He capped his briefing with a Hollywood-style video showing soldiers with hi-tech combat gear complete with voice-activated weapons.

Several speakers addressed the direction Air Force acquisition is taking with "enterprise management," a broader perspective for acquiring and managing systems, resulting in better systems at lower cost and increased fielded capability. The four enterprises are aeronautical, command and control, space and armament.

"Enterprise management is as much about how we think as it is about process and organization," Reynolds said. "We're used to thinking in stovepipes. Now we have to get out of those stovepipes. Cross-enterprise management is the key to delivering integrated war-winning capability." **@**

AF Secretary Roche pays visit to Wright-Patt, AFRL

by 1st Lt. Dani Burrows, ASC Public Affairs

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — Secretary of the Air Force James G. Roche completed his first visit to Wright-Patterson Air Force Base April 30th, saying he was impressed by "our Air Force people."

"I'm always struck by just how super our Air Force people are and the kind of equipment and technology we're developing. It really gives me the confidence that we have the ability to beat anybody," he said. "You work on systems that make a difference."

As an example, Roche cited the F-22 program managed here.

"Clearly, I think the F-22 is terribly important because of the features that have never been present before," he said.

The F-22 Raptor, the Air Force's newest fighter, is scheduled to be operational in 2005. The Air Force's current production plan calls for 339 Raptors. But, according to a report in Wednesday's Washington Times, Secretary of Defense Donald Rumsfeld has instructed the Air Force to study cutting the program to 180 aircraft.

According to Roche, the Air Force needs at least 339.

"Once the capabilities of the F-22 are demonstrated, by being an operational aircraft, the demand for the aircraft will be very much like the demand for the C-17," he said.

Roche's two-day visit included Air Force Materiel Command headquarters, Aeronautical Systems Center's Doolittle Acquisition Management Complex, Air Force Research Laboratory, Air Force Institute of Technology and the Air Force Museum.

"I'm thrilled our top Air Force official was able to visit us and see firsthand how we operate — how we provide air combat power and support our warriors," said Lt. Gen. Dick Reynolds, ASC commander. "I am extremely proud of Team Wright-Patterson and all the people who work here."

And the secretary said he liked what he saw.

If the Air Force had to redesign a center for advanced thinking, early development, development, sustainment and aging aircraft, he said it would be built just like it is today.

He said that if he were a young engineer, he'd have many reasons for wanting to work for the Air Force. "After what I've seen here, I'd probably want to come here to work on neat things," he said.

Focusing on the war on terrorism, Roche said, "Secretary Rumsfeld again this past week made the point that this is a long conflict. I believe we have to organize ourselves for something that is long term."

Dr. James Roche, Secretary of the Air Force, pictured on left; Gen Lester Lyles, commander of Air Force Materiel Command; and Maj. Gen. Paul Nielsen, commander of the Air Force Research Laboratory (AFRL) watch a demonstration during a recent visit to AFRL's Materiels and Manufacturing Directorate. (Air Force photo by 2nd Lt. Morgan J. O'Brien III)

He pointed to the use of unmanned aerial vehicles, another program managed here, and lessons learned on the battlefield.

"One of the things we've learned in this current conflict is that by using the unmanned vehicles, we've learned where they have an advantage and where they don't have an advantage," he said. "We understand more and more that there are things that are in the domain of a pilot's understanding that are best done in an aircraft compared to a two-dimensional representation on the ground."

He also touched on funding stability. "I agree that one of the best things we can do is try and get some stability," he said, adding that budget stability would allow the Air Force to plan better over time.

"AFMC has lived up to its reputation, which it's had for a long time, and that's to get things to the warrior as fast as possible and in as good of a condition as possible," said Roche. **@**

AFRL's Gio Pagán, one of Miami Valley's 40 Under 40

by Katherine Gleason, AFRL Public Affairs

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — When Giovanni (Gio) Pagán moved from Puerto Rico to Ohio more than a decade ago, he brought with him strong ties to his Latino roots and culture. Because of his continued commitment to the promotion of Latino culture and awareness in the Miami Valley, Pagán is being honored as one of the area's "40 Under 40."

The "40 Under 40" award program was developed by the Dayton Business Journal in an effort to recognize the area's brightest young business, community, and political leaders. Pagán was selected from a field of more than 100 nominees.

Since arriving at Wright-Patterson Air Force Base in the summer of 1988, Pagán has been active in a number of programs that benefit the Latino community, and has helped to promote diversity in the Greater Dayton area. He belongs to the Puerto Rican and Caribbean Organization, the Caribbean Folkloric Dancers, and the Spanish Club of Dayton. Through his involvement, Pagán has been able to educate residents on the customs, food, music, and enthusiasm that the Latino culture brings to Dayton.

"This award came as a complete surprise," said Pagán. "I didn't even know I had been nominated. My parents are especially excited."

Pagán relocated to Ohio in the summer of 1988, just months after receiving his B.S. in mechanical engineering from the University of Puerto Rico, Mayagüez. The prospect of working at Wright-Patterson Air Force Base lured him to the Dayton area. **@**

N.M. School teachers take on mission to educate

by John Brownlee, Space Vehicles Directorate

KIRTLAND AIR FORCE BASE, N.M. – If current employment trends continue, the Air Force can expect to attract fewer scientists and engineers in the coming years. Retirement from federal service, competitive hiring in the better-paid private sector, and the disconcerting reality of insufficient numbers of math and science majors enrolling in college today explain the anticipated shortfall. And, it is this likely deficit that has federal number crunchers worried.

For a nation whose relatively stable economy and unmatched defense posture for the last half-century is owed directly to honing the sharpest possible technological edge, a red warning flag has been raised. Consequently, government, academic, and private industry planners are now in a huddle to decide how best to avert a pending disaster that threatens the basis of much of America's success: technological superiority.

The Air Force Research Laboratory at its Phillips Research Site in Albuquerque, N.M., is meeting that challenge. Handpicked top-notch high school teachers from the local community are working with the laboratory to get K-12 students interested not only in math and science, but in possible future careers with the Air Force and other federal research institutions. Rio Rancho Public Schools math teachers, Ronda Cole and Marla Griego, are two such educators now working on-site with AFRL having nearly five decades of classroom experience between them.

"Our outreach programs here, touching the lives of more than 60,000 students since 1992, are geared to inspire young and eager kids, especially the ones we consider to be 'at risk'. And by 'at risk,' I mean those kids who typically believe math and science are not for them, that those subjects are much too hard," said Cole. "By bringing science experts as role models here at AFRL and from private industry such as Boeing and Sandia National Laboratories together with experts in the classroom, teachers, ideally a practical learning environment emerges that will heighten student interest in what are traditionally considered difficult subjects," said Cole. "This is especially important as a student transitions from elementary school, where learning is still fun, through middle school and into high school, where learning and social challenges become increasingly greater. But once a student gets hooked on the possibilities for their own future, they realize that, 'Hey, I'm going to have to take math and science to fulfill my dream.' Here at AFRL, we make that possible by showing our students what is possible, what their potential or talents might be once they get an education, and then give them hands-on experience working with real researchers solving actual problems related to national defense."

"Also, the American educational system frequently prides itself on equal access. As a result, if we, as teachers, do not help hold the door open, particularly for students at risk, the entire country may be otherwise deprived of creative minds. These are the same minds that one day could contribute significantly to the nation's technological base—provided they have access and the encouragement we offer," added Griego.

To reach these important goals, Cole and Griego currently oversee four outreach student programs that started ten years ago at AFRL. One is AFRL Students Planning And Conducting Engineering, or AFRL SPACE, and puts high school students to work designing and performing year-long, real-world research and development projects with AFRL-provided mentors.

PREPARING FOR THE FUTURE — Rio Rancho Public School teacher Ronda Cole is pictured at a 2002 AFRL Mars Missions event.

"Several years ago, our AFRL SPACE students designed an electro-magnetic satellite door that could be closed during a meteor shower, a celestial event potentially harmful to sensitive satellite equipment," said Griego. "Not only did CNN (Cable News Network) come here to do a story on our students, but the work was so well received that the team earned a patent for it!"

Another community-based program with other chapters around the country is the Pinpoint WeatherNet project. With local television station KOB-TV4, the project provides high-quality automated weather stations for 50 New Mexico middle schools and is a non-threatening way to promote the study of science and math.

"We believe that if middle schoolers are fascinated by weather, they will be better motivated to push themselves harder and take on the complexities of mathematics and other subjects required for a career as, say, a meteorologist," remarked Cole.

Aside from high school and middle school projects, Cole and Griego also coordinate two elementary school projects.

"AFRL Providing Engineering and Technology Experiences for Students, or the AFRL PETES project, helps young students soften the transition between elementary and middle school by fostering student mentoring among fifth and sixth graders," said Griego. "It's often tough for kids crossing over into what they perceive as the Big League, and we can lose promising science and math kids if we don't somehow soften their landing."

Lastly, there is the AFRL Mars Missions project, based on the Challenger Center's Marsville®, The Cosmic Village, perhaps the most widely known program with chapters in many other states. "The AFRL Mars Missions project is an exercise expressly for 5th graders, a classroom-based simulation where student teams rely on cooperation and innovation to actually build a habitat prototype of a colony on Mars," explained Cole. "This year, the eighth for the AFRL Mars Missions project, we had so many participants that we had to hold the event in five different cities around the state on separate days. In fact, enrollment is up so high in this program that we now have the largest Marsville® program in the country, right here in New Mexico," said Griego. **@**

Net Index

Due to the number of submissions we receive, some sections of *news@**afrl*** are available exclusively on-line. The on-line version of the newsletter allows users to view the AFRL corporate calendar, news releases generated by AFRL headquarters, operating instructions, L@b L@urels and Roundups sections.

The L@b L@urels section of the electronic newsletter is dedicated to members of Air Force Research Laboratory who receive awards and honors. The Roundups section of the electronic newsletter keeps Air Force Research laboratory employees informed about contracts AFRL has awarded. Below is an index of articles one can find in each of these on-line sections.

L@b L@urels

- **PR scientist named as AIAA Fellow**
- **Air Vehicles engineer honored by RNASA**
- **Ceremony honors Directed Energy achievers**

Stay tuned for the June edition featuring...

AFRL Scientist Selected for National Honor

and

Propulsion Researcher winds Air Force R & D Award

For more on these stories see news@afrl
http://extra.afrl.af.mil/news/index.htm

AFRL ML sponsors Bring Your Child to Work Day

Jim Solomon, ML Senior Research Engineer, University of Dayton Research Institute contractor, (pictured) performed a "Wizards of Wright" physics demonstration on "Take Your Child to Work Day". (Air Force photo by Katherine Gleason)

To view the full text of these and other articles visit the *news@**afrl*** page on the Internet at http://extra.afrl.af.mil/news/index.htm.

To submit L@b L@urels or Roundups from your directorate, send a query to AFRL Public Affairs at:

Jill.Bohn@afrl.af.mil
or,
Anne.Gunter@afrl.af.mil

✓Out Our New Online Sections …..
News Briefs and L@b Distinctions

The official voice of the Air Force Research Laboratory

news@afrl

May 2002 Volume III, Issue 5

Program brings Ukrainian professor to Eglin

EGLIN AIR FORCE BASE, Fla. — Professor Volodymyr Malyutenko, from the Institute of Semiconductor Physics, Ukranian Academy of Science, Kiev, Ukraine, visited the Eglin area in April, to discuss ongoing joint research efforts with the Air Force Research Laboratory through the Science and Technology Center Ukraine program.....2

AFOSR 50th Anniversary celebration

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — An all-star cast of the world's finest scientists and engineers celebrated the 50th anniversary of the Air Force Office of Scientific Research (AFOSR) on April 25 in Washington D.C. The commemoration reflected on the past and focused on future goals.....3

AF Secretary Roche pays visit to Wright-Patt, AFRL

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — Secretary of the Air Force James G. Roche completed his first visit to Wright-Patterson Air Force Base April 30th, saying he was impressed by "our Air Force people."....4

AFRL's Gio Pagán, one of 40 Under 40

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — When Giovanni (Gio) Pagán moved from Puerto Rico to Ohio more than a decade ago, he brought with him strong ties to his Latino roots and culture.....4

Additional information is available online including:

- **Breaking News Features**
- **Corporate Calendar**
- **Contact Information**

NASTC conference draws large crowd

by Joanne Rumple, ASC Public Affairs

DAYTON, Ohio — Transforming air power through technology and innovation was the theme as some 800 research and acquisition professionals from the Air Force, industry and academia met this week at the Dayton Convention Center and Wright-Patterson AFB for the 2002 National Aeronautical Systems and Technology Conference.

Setting the stage for the conference's three dozen speakers, Gen. Lester L. Lyles, Air Force Materiel Command commander, emphasized the need for transforming the Air Force and the command — and his vision of that transformation. He addressed the need to reduce program development cycle times, use spiral development to incorporate new technologies and increased capabilities into weapon systems, eliminate programmatic surprises and coordinate the transformation now under way for sustainment programs.

Lyles said if he asked any of the major program directors in the audience what they were graded on, they would say they are graded on how well they executed their programs.

"And that's good," he said. "All of us who were program directors in the past ... learned to focus on our own programs. When you think about it in terms of effects and in terms of capabilities, and transformation and enterprise, we have to get away from that program-centric culture and mindset. We're trying to find ways now that we can also raise program directors — raise people in our organizations — to focus on creating the desired effect for the war fighter, to focus on creating and supporting the enterprise."

Lyles said the objective is to break people out of their "stovepipes" and to look at issues with a broader perspective.

"This is a different way of thinking," he said. "We don't normally teach people to do that. We're going to have to make that part of our teaching process as we go through our transformation."

NASTC continued on page 3

Rich Garcia, public affairs chief for Air Force Research Laboratory's Directed Energy Directorate, talks about the modified Boeing 747-400F which will carry the Airborne Laser weapon system. The program is managed by Aeronautical Systems Center at Kirtland Air Force Base, N.M. (Air Force photo by Spencer P. Lane)

news@afrl

May 2002

Commander
Maj. Gen. Paul D. Nielsen

Director of Public Affairs
Anne Gunter

Production Editor
Jill Bohn

Associate Editor
Katherine Gleason

Public Affairs Specialist
2nd Lt Morgan O'Brien III

news@afrl is published quarterly by the Office of Public Affairs of Air Force Research Laboratory Headquarters. Contact the office at AFRL/PA, Building 15 Room 225, 1864 4th St., WPAFB, Ohio, 45433-7132, (937) 656-9010/9876, or send e-mail to AFRL.PA@afrl.af.mil. Contents of this newsletter are not necessarily the official views of, or are endorsed by, the U.S. Government, the Department of Defense or the Department of the Air Force. The editorial content is edited, prepared and provided by this office. Photographs are official U.S. Air Force photos unless otherwise indicated. Submission guidelines are available from this office or on-line. Electronic copies and additional full-text articles are available on-line at:

http://extra.afrl.af.mil/news/index.htm

Program brings Ukrainian professor to Eglin

by Rex Swenson, Munitions Directorate

EGLIN AIR FORCE BASE, Fla. — Professor Volodymyr Malyutenko, from the Institute of Semiconductor Physics, Ukranian Academy of Science, Kiev, Ukraine, visited the Eglin area in April, to discuss ongoing joint research efforts with the Air Force Research Laboratory through the Science and Technology Center Ukraine program.

Volodymyr Malyutenko

Malyutenko gave a general presentation to the Emerald Coast Optical Society at the University of Florida Graduate Engineering and Research Center, located in nearby Shalimar, on Friday, April 12.

"I am enjoying my visit to Florida very much," said the professor. "The best part is the exchange of ideas with my American colleagues."

The Air Force Office of Scientific Research sponsored his visit as a Windows on Science Visit. The professor's current efforts include development of mid and long wave infrared (IR) light-emitting diode blackbody point/extended sources, visible to IR scene conversion, and a preliminary demonstration of a Germanium visible to IR converter concept device, he explained. Commercialization discussions with various companies were also on the agenda.

Professor Malyutenko is the Head of Department at the Institute of Semiconductor Physics in Kiev, Ukraine. His current research interests include: science based understanding of extreme level electron processes in IR emitting structures, 2D- and 3D-computer modeling of heat and light transfer in LEDs, light conversion processes, high resolution IR microscopy and IR dynamic scene simulation devices.

He is a member of the International Editorial Board of Infrared Physics & Technology Journal, and serves as a scientific adviser to NATO. **@**

Find additional Fe@tures on the web

AFRL men's basketball wins third intramural title

Jet displays tribute to surgeon's support

AFRL technology helps catch a killer

AFOSR 50th Anniversary celebration reflects on past, focuses on future

by 2nd Lt. Morgan J. O'Brien III, AFRL Public Affairs

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — An all-star cast of the world's finest scientists and engineers celebrated the 50th anniversary of the Air Force Office of Scientific Research (AFOSR) on April 25 in Washington D.C. The commemoration reflected on the past and focused on future goals.

The event, which took place in the Ronald Reagan Building and International Trade Center, included exhibits from the Air Force Research Laboratory's nine technology directorates and AFOSR; a keynote address and luncheon with the Chairman of the House Science Committee Sherwood Boehlert (R-N.Y.); and was framed by a series of world-renowned guest speakers.

The theme of the event, "Celebrating 50 years of Scientific Breakthroughs for the Warfighter," concentrated on the essence of what AFOSR does best: building the foundation for revolutionary breakthroughs in science and technology.

"Organizations like the Air Force Research Laboratory and the AFOSR are the wellsprings of innovation and discovery across disciplines of science and engineering," noted Boehlert. "We must continue to keep them healthy and vibrant so we may continue to keep the U.S. Air Force on the cutting edge far into the future."

Dr. Lyle Schwartz, Director of the AFOSR, kicked off the festivities with a video tracing the history of the soldier scientist from Archimedes to the past 50 years of accomplishments of the AFOSR. While lauding the accomplishments of the past half-century, Dr. Schwartz's speech focused on the years to come, a theme mentioned many times throughout the celebration.

"We seek the brightest minds," Schwartz said, "Wherever they may be found."

Also in attendance were two Nobel laureates, Dr. Steven Chu and Dr. Alan J. Heeger, who spoke of the necessity of future scientific synthesis.

"The connection between physics and biology is fairly obvious," said Chu. "Without that connection, we would not have the scanning electron microscope, laser eye surgery or x-ray crystallography. AFOSR and its basic research are vital to technological advances in the future." Heeger concurred, adding; "The key to fighting bioterrorism comes from the combination of disciplines in order to create technologies such as handheld anthrax sensors and the like."

Air Force Materiel Command commander Gen. Lester Lyles spoke about the contribution basic science made to the Air Operations Center, the vital weapon system of the Air Force.

"The heart and soul of the operational Air Force is the Air Operations Center," said Lyles, "and technologies such as the data wall and other technologies borne of basic science keep this heart and soul going."

Air Force Research Laboratory (AFRL) Commander Maj. Gen. Paul Nielsen agreed with the need to remember the past when focusing on the future. **@**

NASTC (from page 1)

Hosted by Aeronautical Systems Center Commander Lt. Gen. Dick Reynolds and Air Force Research Laboratory Commander Maj. Gen. Paul Nielsen, this was the third NASTC conference, part of a series of annual conferences designed to help Air Force and industry counterparts communicate about changes critical to the defense of the nation.

"This (conference) is all about exchanging information," Reynolds said. "The 'kill chain' for this week is information leading to knowledge which compels understanding that yields ideas for transformation. We have broken (attendance) records for the second year with about 800 people here. We have sold out our conference space."

Nielsen added, "The great turnout affords us an opportunity to demonstrate AFRL's transformational innovations to many of the key people in air and space technology. With an audience like this, we help influence both the focus of today's science and technology and the air and space innovations of tomorrow. This conference helps us achieve that goal by allowing us to share with our industry counterparts the technologies we want their help in developing."

A common thread of many of the briefings was Air Force and DOD emphasis on capability-based planning and acquisition — rather than platform-centric or weapon system-based planning to support the war fighter; emphasis on developments in information-, nano-, directed energy and bio-technologies; and changes in organizational structure to codify these approaches to transformation.

Retired Air Force Maj. Gen. Claude Bolton, now assistant secretary of the Army for acquisition, logistics and technology, spoke about Army initiatives to reform that service's acquisition.

Bolton said the Army's transformation will be the service's "biggest change in the Army in 100 years." As part of his presentation, "Transforming the Way Soldiers Fight," Bolton spoke of linked systems talking and fighting together in a sphere moving around the battle space. He capped his briefing with a Hollywood-style video showing soldiers with hi-tech combat gear complete with voice-activated weapons.

Several speakers addressed the direction Air Force acquisition is taking with "enterprise management," a broader perspective for acquiring and managing systems, resulting in better systems at lower cost and increased fielded capability. The four enterprises are aeronautical, command and control, space and armament.

"Enterprise management is as much about how we think as it is about process and organization," Reynolds said. "We're used to thinking in stovepipes. Now we have to get out of those stovepipes. Cross-enterprise management is the key to delivering integrated war-winning capability." **@**

AF Secretary Roche pays visit to Wright-Patt, AFRL

by 1st Lt. Dani Burrows, ASC Public Affairs

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — Secretary of the Air Force James G. Roche completed his first visit to Wright-Patterson Air Force Base April 30th, saying he was impressed by "our Air Force people."

"I'm always struck by just how super our Air Force people are and the kind of equipment and technology we're developing. It really gives me the confidence that we have the ability to beat anybody," he said. "You work on systems that make a difference."

As an example, Roche cited the F-22 program managed here.

"Clearly, I think the F-22 is terribly important because of the features that have never been present before," he said.

The F-22 Raptor, the Air Force's newest fighter, is scheduled to be operational in 2005. The Air Force's current production plan calls for 339 Raptors. But, according to a report in Wednesday's Washington Times, Secretary of Defense Donald Rumsfeld has instructed the Air Force to study cutting the program to 180 aircraft.

According to Roche, the Air Force needs at least 339.

"Once the capabilities of the F-22 are demonstrated, by being an operational aircraft, the demand for the aircraft will be very much like the demand for the C-17," he said.

Roche's two-day visit included Air Force Materiel Command headquarters, Aeronautical Systems Center's Doolittle Acquisition Management Complex, Air Force Research Laboratory, Air Force Institute of Technology and the Air Force Museum.

"I'm thrilled our top Air Force official was able to visit us and see firsthand how we operate — how we provide air combat power and support our warriors," said Lt. Gen. Dick Reynolds, ASC commander. "I am extremely proud of Team Wright-Patterson and all the people who work here."

And the secretary said he liked what he saw.

If the Air Force had to redesign a center for advanced thinking, early development, development, sustainment and aging aircraft, he said it would be built just like it is today.

He said that if he were a young engineer, he'd have many reasons for wanting to work for the Air Force. "After what I've seen here, I'd probably want to come here to work on neat things," he said.

Focusing on the war on terrorism, Roche said, "Secretary Rumsfeld again this past week made the point that this is a long conflict. I believe we have to organize ourselves for something that is long term."

Dr. James Roche, Secretary of the Air Force, pictured on left; Gen Lester Lyles, commander of Air Force Materiel Command; and Maj. Gen. Paul Nielsen, commander of the Air Force Research Laboratory (AFRL) watch a demonstration during a recent visit to AFRL's Materiels and Manufacturing Directorate. (Air Force photo by 2nd Lt. Morgan J. O'Brien III)

He pointed to the use of unmanned aerial vehicles, another program managed here, and lessons learned on the battlefield.

"One of the things we've learned in this current conflict is that by using the unmanned vehicles, we've learned where they have an advantage and where they don't have an advantage," he said. "We understand more and more that there are things that are in the domain of a pilot's understanding that are best done in an aircraft compared to a two-dimensional representation on the ground."

He also touched on funding stability. "I agree that one of the best things we can do is try and get some stability," he said, adding that budget stability would allow the Air Force to plan better over time.

"AFMC has lived up to its reputation, which it's had for a long time, and that's to get things to the warrior as fast as possible and in as good of a condition as possible," said Roche. **@**

AFRL's Gio Pagán, one of Miami Valley's 40 Under 40

by Katherine Gleason, AFRL Public Affairs

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — When Giovanni (Gio) Pagán moved from Puerto Rico to Ohio more than a decade ago, he brought with him strong ties to his Latino roots and culture. Because of his continued commitment to the promotion of Latino culture and awareness in the Miami Valley, Pagán is being honored as one of the area's "40 Under 40."

The "40 Under 40" award program was developed by the Dayton Business Journal in an effort to recognize the area's brightest young business, community, and political leaders. Pagán was selected from a field of more than 100 nominees.

Since arriving at Wright-Patterson Air Force Base in the summer of 1988, Pagán has been active in a number of programs that benefit the Latino community, and has helped to promote diversity in the Greater Dayton area. He belongs to the Puerto Rican and Caribbean Organization, the Caribbean Folkloric Dancers, and the Spanish Club of Dayton. Through his involvement, Pagán has been able to educate residents on the customs, food, music, and enthusiasm that the Latino culture brings to Dayton.

"This award came as a complete surprise," said Pagán. "I didn't even know I had been nominated. My parents are especially excited."

Pagán relocated to Ohio in the summer of 1988, just months after receiving his B.S. in mechanical engineering from the University of Puerto Rico, Mayagüez. The prospect of working at Wright-Patterson Air Force Base lured him to the Dayton area. **@**

N.M. School teachers take on mission to educate

by John Brownlee, Space Vehicles Directorate

KIRTLAND AIR FORCE BASE, N.M. – If current employment trends continue, the Air Force can expect to attract fewer scientists and engineers in the coming years. Retirement from federal service, competitive hiring in the better-paid private sector, and the disconcerting reality of insufficient numbers of math and science majors enrolling in college today explain the anticipated shortfall. And, it is this likely deficit that has federal number crunchers worried.

For a nation whose relatively stable economy and unmatched defense posture for the last half-century is owed directly to honing the sharpest possible technological edge, a red warning flag has been raised. Consequently, government, academic, and private industry planners are now in a huddle to decide how best to avert a pending disaster that threatens the basis of much of America's success: technological superiority.

The Air Force Research Laboratory at its Phillips Research Site in Albuquerque, N.M., is meeting that challenge. Handpicked top-notch high school teachers from the local community are working with the laboratory to get K-12 students interested not only in math and science, but in possible future careers with the Air Force and other federal research institutions. Rio Rancho Public Schools math teachers, Ronda Cole and Marla Griego, are two such educators now working on-site with AFRL having nearly five decades of classroom experience between them.

"Our outreach programs here, touching the lives of more than 60,000 students since 1992, are geared to inspire young and eager kids, especially the ones we consider to be 'at risk'. And by 'at risk,' I mean those kids who typically believe math and science are not for them, that those subjects are much too hard," said Cole. "By bringing science experts as role models here at AFRL and from private industry such as Boeing and Sandia National Laboratories together with experts in the classroom, teachers, ideally a practical learning environment emerges that will heighten student interest in what are traditionally considered difficult subjects," said Cole. "This is especially important as a student transitions from elementary school, where learning is still fun, through middle school and into high school, where learning and social challenges become increasingly greater. But once a student gets hooked on the possibilities for their own future, they realize that, 'Hey, I'm going to have to take math and science to fulfill my dream.' Here at AFRL, we make that possible by showing our students what is possible, what their potential or talents might be once they get an education, and then give them hands-on experience working with real researchers solving actual problems related to national defense."

"Also, the American educational system frequently prides itself on equal access. As a result, if we, as teachers, do not help hold the door open, particularly for students at risk, the entire country may be otherwise deprived of creative minds. These are the same minds that one day could contribute significantly to the nation's technological base—provided they have access and the encouragement we offer," added Griego.

To reach these important goals, Cole and Griego currently oversee four outreach student programs that started ten years ago at AFRL. One is AFRL Students Planning And Conducting Engineering, or AFRL SPACE, and puts high school students to work designing and performing year-long, real-world research and development projects with AFRL-provided mentors.

PREPARING FOR THE FUTURE — Rio Rancho Public School teacher Ronda Cole is pictured at a 2002 AFRL Mars Missions event.

"Several years ago, our AFRL SPACE students designed an electro-magnetic satellite door that could be closed during a meteor shower, a celestial event potentially harmful to sensitive satellite equipment," said Griego. "Not only did CNN (Cable News Network) come here to do a story on our students, but the work was so well received that the team earned a patent for it!"

Another community-based program with other chapters around the country is the Pinpoint WeatherNet project. With local television station KOB-TV4, the project provides high-quality automated weather stations for 50 New Mexico middle schools and is a non-threatening way to promote the study of science and math.

"We believe that if middle schoolers are fascinated by weather, they will be better motivated to push themselves harder and take on the complexities of mathematics and other subjects required for a career as, say, a meteorologist," remarked Cole.

Aside from high school and middle school projects, Cole and Griego also coordinate two elementary school projects.

"AFRL Providing Engineering and Technology Experiences for Students, or the AFRL PETES project, helps young students soften the transition between elementary and middle school by fostering student mentoring among fifth and sixth graders," said Griego. "It's often tough for kids crossing over into what they perceive as the Big League, and we can lose promising science and math kids if we don't somehow soften their landing."

Lastly, there is the AFRL Mars Missions project, based on the Challenger Center's Marsville®, The Cosmic Village, perhaps the most widely known program with chapters in many other states. "The AFRL Mars Missions project is an exercise expressly for 5th graders, a classroom-based simulation where student teams rely on cooperation and innovation to actually build a habitat prototype of a colony on Mars," explained Cole. "This year, the eighth for the AFRL Mars Missions project, we had so many participants that we had to hold the event in five different cities around the state on separate days. In fact, enrollment is up so high in this program that we now have the largest Marsville® program in the country, right here in New Mexico," said Griego. **@**

Net Index

Due to the number of submissions we receive, some sections of *news@**afrl*** are available exclusively on-line. The on-line version of the newsletter allows users to view the AFRL corporate calendar, news releases generated by AFRL headquarters, operating instructions, L@b L@urels and Roundups sections.

The L@b L@urels section of the electronic newsletter is dedicated to members of Air Force Research Laboratory who receive awards and honors. The Roundups section of the electronic newsletter keeps Air Force Research laboratory employees informed about contracts AFRL has awarded. Below is an index of articles one can find in each of these on-line sections.

L@b L@urels

- **PR scientist named as AIAA Fellow**
- **Air Vehicles engineer honored by RNASA**
- **Ceremony honors Directed Energy achievers**

Stay tuned for the June edition featuring...

AFRL Scientist Selected for National Honor

and

Propulsion Researcher winds Air Force R & D Award

For more on these stories see news@afrl
http://extra.afrl.af.mil/news/index.htm

AFRL ML sponsors Bring Your Child to Work Day

Jim Solomon, ML Senior Research Engineer, University of Dayton Research Institute contractor, (pictured) performed a "Wizards of Wright" physics demonstration on "Take Your Child to Work Day". (Air Force photo by Katherine Gleason)

To view the full text of these and other articles visit the *news@**afrl*** page on the Internet at http://extra.afrl.af.mil/news/index.htm.

To submit L@b L@urels or Roundups from your directorate, send a query to AFRL Public Affairs at:

Jill.Bohn@afrl.af.mil
or,
Anne.Gunter@afrl.af.mil

✓Out Our New Online Sections …..
News Briefs and L@b Distinctions